What kinds of insects are borers?

- **Moths**
  - Shoot tip moths (several families)
  - Clear wing moths
  - Others, pyralid moths, carpenter worms

- **Beetles**
  - Metallic wood boring beetles (Flat headed borers)
  - Long horned beetles
  - Bark beetles
  - Ambrosia beetles
  - Sap beetles
  - Weevils

- **Wasps**
  - Horn tails
  - Sawflies
Adult European Pine Shoot Moth
European Pine Shoot Moth
Zimmerman Pine Moth Damage
Zimmerman Pine Moth
Habitus
Zimmerman Pine Moth Caterpillar
Evaluation of Resistant Varieties

93 ZPM Infested and 95 Unsold

- Belgian
- Lk Sup Blue
- Pike Lake
- Penn Span
- Land O Pine
- Vans 33
- E. Ang
- Hensler
- Cl. E. Anglia

% of trees

- 93% inf
- % unsold 95
Management Strategy

ZPM Management Strategy for new fields

Year 1-4 (keep them out)
Scout and Spot Treat, or
Cover spray in April (100 gal / Acre)

Year 5-9 (coast)
No Sprays (penetration probs)
Cull Heavily Infested trees
Dogwood Borer
Borer Injury
Pupal Skin of Dogwood Borer
Dogwood borers attack trees wrapped in plastic
Pheromone Traps
Clearwing Borers

Dogwood  Banded Ash  Rhododendron
Banded Ash Clearwing

- Dieback
- Still treatable
Banded Ash Clearwing Pupa
Banded Ash Clearwing Hole
Banded Ash Clearwing Sawdust
# Common Clear Wing Borers

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Hosts attacked</th>
<th>Flight Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banded Ash Clearwing</td>
<td>Ash</td>
<td>Late July-Sept</td>
</tr>
<tr>
<td>Dogwood borer</td>
<td>Dogwood, apple, pear</td>
<td>Late May</td>
</tr>
<tr>
<td>Lesser peach tree borer</td>
<td>Peach, cherry, plum, Ash, lilac, privet, fringe tree</td>
<td>May-July, July-Sept</td>
</tr>
<tr>
<td>Lilac borer</td>
<td>Ash, lilac, privet, fringe tree</td>
<td>May- July</td>
</tr>
<tr>
<td>Oak borer</td>
<td>Oak</td>
<td>May- June</td>
</tr>
<tr>
<td>Peach tree borer</td>
<td>Peach, Cherry <em>Rhododendron</em></td>
<td>Mid-June-August May</td>
</tr>
<tr>
<td>Rhododendron Borer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lilac Borer
Lilac Borer Damage
Peach Tree Borer Damage
Carpenter Worm
Carpenter Worm Gallery